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10/581,231	06/02/2006	Zhangzhen Jiang	CU-4813 WWP	1368

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LADAS & PARRY LLP
224 SOUTH MICHIGAN AVENUE
SUITE 1600
CHICAGO, IL 60604

EXAMINER	
VU, HOANG-CHUONG Q	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,231	JIANG ET AL.	
	Examiner	Art Unit	
	HOANG-CHUONG Q. VU	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-7,9 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-7,9 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims: Claims 1, 5-7, 9-10 are currently pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sethuram et al. (6,765,928) in view of DeMartino (2006/0274734).

Regarding claim 1, Sethuram et al. disclose a synchronous digital hierarchy tributary module supporting multiple service processing, including a Synchronous Digital Hierarchy (SDH) tributary processing unit **(see Fig. 8; SONET/SDH engine (col. 5 lines 49-55))** and service processing units; wherein there are at least two service processing units **(see Fig. 6E; services receive and transmit byte engines for services of various data types (col. 5 lines 41-43))** connected with the SDH tributary processing unit respectively, for mapping and unmapping corresponding service signals

(see col. 7 lines 12-40 and Fig. 8; various type of services are mapped into SHD SPE for transmission and SDH SPE can be demapped to the native data format type for according service); the SDH tributary processing unit is for multiplexing and demultiplexing multiple service signals in an SDH signal **(see col. 5 lines 51-55 and col. 17 lines 28-35; the SDH transmit byte engine multiplexes service data received from multiple services for transmission into the SDH communication system as a SONET/SDH frame. See col. 11 lines 44-50 for demultiplexing)**; and wherein the SDH tributary processing unit separates out the service signals corresponding to different service processing units according to different time slots corresponding to the SDH signals of different services **(see col. 6 lines 52-58; segregate information within the SDH data stream for each service which each service is transmitted at appropriate time slots within the SDH data stream)**. However, Sethuram et al. may not explicitly teach wherein the SDH tributary processing unit and the at least two service processing units are disposed on one board; the tributary module further includes a multiple service cross processing unit which is used to implement interconnection among different services, each service processing unit being connected to a local interface through the multiple service cross processing unit. DeMartino from the same or similar field of endeavor teaches wherein the SDH tributary processing unit and the at least two service processing units are disposed on one board **(see Fig. 6; multiplexing and distribution unit 66 and units 68, 74 are located/disposed within 20)**; the tributary module further includes a multiple service cross processing unit which is used to implement interconnection among different

services **(see Fig. 6; VDSL interface unit 78 to process POTS/ISDN data to pass to ADSL interface 68 and to process video data to pass to video switch interface 74)**, each service processing unit being connected to a local interface through the multiple service cross processing unit **(see Fig. 6; ADSL interface unit 68 and video switch interface 74 connected to subscriber nodes thru VDSL interface unit)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching of DeMartino in the teaching of Sethuram et al. to provide an interface/board for integrating a plurality of processing units and a mux/demux module in a single platform/unit. One of ordinary skill in the art at the time the invention was made would have motivated to do so to improve space as multiple components can be built into a single platform/unit. One of ordinary skill in the art would also have motivated to include the VDSL 78 as taught by DeMartino to cross-connect data from the subscriber with each processing unit (ADSL interface and video switch interface) to switch a particular service to the correct processing unit. One of ordinary skill in the art would have motivated to do so to appropriately transmit data to destined unit for processing.

4. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sethuram et al. (6,765,928) in view of DeMartino (2006/0274734), and further in view of Shimbashi et al. (6,798,779).

Regarding claim 5, Sethuram et al. further teach the synchronous digital hierarchy tributary module supporting multiple service processing, wherein a SDH equipment node time-division multiplexes multiple service SDH signals into one SDH

signal **(see col. 4 lines 58-67 and col. 5 lines 52-55 and col. 6 lines 54-55; multiplexing service data from multiple services into SONET/SDH frames/streams using appropriate time slots)**. However, Sethuram et al. and DeMartino may not explicitly teach a cross module for performing multiplexing step. Shimbashi et al. from the same or similar field of endeavor teach a cross-connect or switching circuit to perform arrangements of VT signals and ATM to appropriate time slot **(see Fig. 8)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the cross-connect of Shimbashi et al. to multiplex multiple data service signals into a SDH stream. One of ordinary skill in the art at the time would have motivated to do so to convert multiple service signals into a SDH stream. The motivation or suggestion would have been to provide faster transmission since multiple transmissions can be distributed in SDH.

Regarding claim 6, Sethuram et al. further teach a synchronous digital hierarchy communication supporting multiple service processing, wherein the services to be sent from the local to the SDH side are mapped by the service processing units respectively **(see col. 17 line 65 thru col. 18 line 16 and Fig. 8; Each type of services are mapped into STS frames for transmission)** and sent to the SDH tributary processing unit for multiplexing **(see col. 5 lines 51-55; the SDH transmit byte engine multiplexes service data received from multiple services for transmission into the SDH communication system as a SONET/SDH frame. Also see col. 17 lines 28-35)**, different services being multiplexed in different time slots **(see col. 6 lines 52-58)**. Shimbashi et al. further teach the cross module of the SDH equipment node transmits

the signals of different time slots to corresponding line modules or other tributary modules **(see Fig. 8; VT signals are arranged to time slots by cross-connect or switching. See Fig. 15, signals are transmitted to interface modules IF)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching of Shimbashi et al. in the teaching of Sethuram et al. and DeMartino. One of ordinary skill in the art would have motivated to utilize the cross-connect taught by Shimbashi et al. to transmit signals in different time slots to output the signals. The motivation for doing so is to provide efficient time for transmitting SDH stream of different data services.

5. **Claims 7, 9, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sethuram et al. (6,765,928) in view of Shimbashi et al. (6,798,779) and DeMartino (2006/0274734).

Regarding claim 7, Sethuram et al. disclose a SDH equipment node using the synchronous digital hierarchy tributary module, including a plurality of local interfaces **(see col. 16 line 66 thru col. 17 line 2; services engine interfaces and processes M streams of variable data types)**, wherein the SDH tributary module comprises an SDH tributary processing unit **(see Fig. 8; SONET/SDH engine (col. 5 lines 49-55))** and at least two service processing units **(see Fig. 6E; services receive and transmit byte engines for services of various data types (col. 5 lines 41-43))** connected with the SDH tributary processing unit respectively , the service processing unit being for mapping and unmapping corresponding service signal **(see col. 7 lines 12-40 and Fig. 8; various type of services are mapped into SHD SPE for transmission and SDH**

SPE can be demapped to the native data format type for according service), and the SDH tributary processing unit being for multiplexing and demultiplexing multiple service signals in an SDH signal **(see col. 5 lines 51-55 and col. 17 lines 28-35; the SDH transmit byte engine multiplexes service data received from multiple services for transmission into the SDH communication system as a SONET/SDH frame. See col. 11 lines 44-50 for demultiplexing)**; and wherein the SDH tributary processing unit separates out the service signals corresponding to different service processing units according to different time slots corresponding to the SDH signals of different service **(see col. 6 lines 52-58; segregate information within the SDH data stream for each service which each service is transmitted at appropriate time slots within the SDH data stream)**. But, Sethuram et al. may not explicitly teach a plurality of line modules, a cross module connected with the line modules respectively and a plurality of SDH tributary modules connected with the cross module respectively. However, Shimbashi et al. from the same or similar field of endeavor teach a plurality of line modules **(see Fig. 15, interface modules IF 152-1 thru 152-m)**, a cross module connected with the line modules respectively **(see Fig. 15, IF modules connected to cross-connecting units)** and a plurality of SDH tributary modules connected with the cross module respectively **(see Fig. 15, STS mux and dmux)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the system of Shimbashi et al. in the system taught by Sethuram et al. One of ordinary skill in the art would have motivated to utilize the cross module, IF modules taught by Shimbashi et al. to perform STS cross-connect operation. The motivation for doing so is

to accommodate various type of services and to handle various data information in an STM format **(see Shimbashi et al. col. 1 lines 14-45).** However, Sethuram et al. and Shimbashi et al. may not explicitly teach wherein the SDH tributary processing unit and the at least two service processing units are disposed on one board the tributary module further includes a multiple service cross processing unit which is used to implement interconnection among different services, each service processing unit being connected to a local interface through the multiple service cross processing unit. DeMartino from the same or similar field of endeavor teaches wherein the SDH tributary processing unit and the at least two service processing units are disposed on one board **(see Fig. 6; multiplexing and distribution unit 66 and units 68, 74 are located/disposed within 20)**; the tributary module further includes a multiple service cross processing unit which is used to implement interconnection among different services **(see Fig. 6; VDSL interface unit 78 to process POTS/ISDN data to pass to ADSL interface 68 and to process video data to pass to video switch interface 74)**, each service processing unit being connected to a local interface through the multiple service cross processing unit **(see Fig. 6; ADSL interface unit 68 and video switch interface 74 connected to subscriber nodes thru VDSL interface unit)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching of DeMartino in the teaching of Sethuram et al. to provide an interface/board for integrating a plurality of processing units and a mux/demux module in a single platform/unit. One of ordinary skill in the art at the time the invention was made would have motivated to do so to improve space as multiple components can be built into a single platform/unit. One

of ordinary skill in the art would also have motivated to include the VDSL 78 as taught by DeMartino to cross-connect data from the subscriber with each processing unit (ADSL interface and video switch interface) to switch a particular service to the correct processing unit. One of ordinary skill in the art would have motivated to do so to appropriately transmit data to destined unit for processing.

Regarding claim 9, Sethuram et al. further teach the synchronous digital hierarchy tributary module supporting multiple service processing, wherein a SDH equipment node time-division multiplexes multiple service SDH signals into one SDH signal **(see col. 4 lines 58-67 and col. 5 lines 52-55 and col. 6 lines 54-55; multiplexing service data from multiple services into SONET/SDH frames/streams using appropriate time slots)**. Shimbashi et al. further teach a cross-connect or switching circuit to perform arrangements of VT signals and ATM to appropriate time slot **(see Fig. 8)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a cross-connect of Shimbashi et al. to multiplex multiple data services into a SDH stream. One of ordinary skill in the art at the time would have motivated to do so to convert multiple service signals into a SDH stream. The motivation or suggestion would have been to provide faster transmission since multiple transmissions can be distributed in SDH.

Regarding claim 10, Sethuram et al. further teach a synchronous digital hierarchy communication supporting multiple service processing, wherein the services to be sent from the local to the SDH side are mapped by the service processing units respectively **(see col. 17 line 65 thru col. 18 line 16 and Fig. 8; Each type of**

services are mapped into STS frames for transmission) and sent to the SDH tributary processing unit for multiplexing **(see col. 5 lines 51-55; the SDH transmit byte engine multiplexes service data received from multiple services for transmission into the SDH communication system as a SONET/SDH frame. Also see col. 17 lines 28-35)**, different services being multiplexed in different time slots **(see col. 6 lines 52-58)**. Shimbashi et al. further teach the cross module of the SDH equipment node transmits the signals of different time slots to corresponding line modules or other tributary modules **(see Fig. 8; VT signals are arranged to time slots by cross-connect or switching. See Fig. 15, signals are transmitted to interface modules IF)**. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching of Shimbashi et al. in the teaching of Sethuram et al. and DeMartino. One of ordinary skill in the art would have motivated to utilize the cross-connect taught by Shimbashi et al. to transmit signals in different time slots to output the signals. The motivation for doing so is to provide efficient time for transmitting SDH stream of different data services.

Response to Arguments/Remarks

6. Applicant's arguments/remarks, see pages 3-6 of the Applicant's Response, filed 04/06/2009, with respect to the rejection(s) of claim(s) 1, 7 under 35 U.S.C. 103(a) regarding Wakai et al. (2004/0208554) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of DeMartino (2006/0274734) and has been addressed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOANG-CHUONG Q. VU whose telephone number is (571) 270-3945. The examiner can normally be reached on Monday through Thursday 8:30 AM to 5:00 PM EST. and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AYAZ R. SHEIKH can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. V./ 05/18/2009
Examiner, Art Unit 2419

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2419